

Lung Biomarker Atlas

Chris A. Mattmann

Roadmap

- Purpose
- Relationship to EDRN efforts and standards
- High Level Architecture
- Screenshots
- Current Status
- Role of DMCC and NCI
- Next Steps

Lung Biomarker Atlas purpose

- To develop a reusable framework and application supporting region based analysis of organ based cancer sites and science data from distributed repositories
 - Initially, for lung organ
 - Search image data repositories from multiple sites
- Support collaboration and science discovery activities with EDRN PIs and EDRN as well as other NCI programs

Lung Biomarker Atlas purpose

- To develop applications of organoids from cell lines
- Initial
- Search
- Support activities other

EDRN ecas lung interface

http://cancer.jpl.nasa.gov/biomarkeratlas/search.php

Most Visited YouTube - Will Ferr... Getting Started Latest Headlines OCOPCS (I&T) Pri... UCHSC Lung Images

Linux as a case study Wiley InterScience :: JOURNALS ::... EDRN ecas lung interface Welcome to EDRN! - EDRN

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Biomarker Search: Lung

expand [+]

Patient Characteristics

hide [-]

Patient ID: Submit

[hint: try 6146384]

Gender: ☒ Male ☒ Female

Ethnicity:

☐ Caucasian

☐ African American

☐ American Indian or Alaska Native

☐ Native Hawaiian or other Pacific Islander

☐ Asian

☐ Other

☐ Unknown / refused

Born between 1928 and 2007

Patient History of Cancer: ☐ No ☒ Yes

Type: Lung

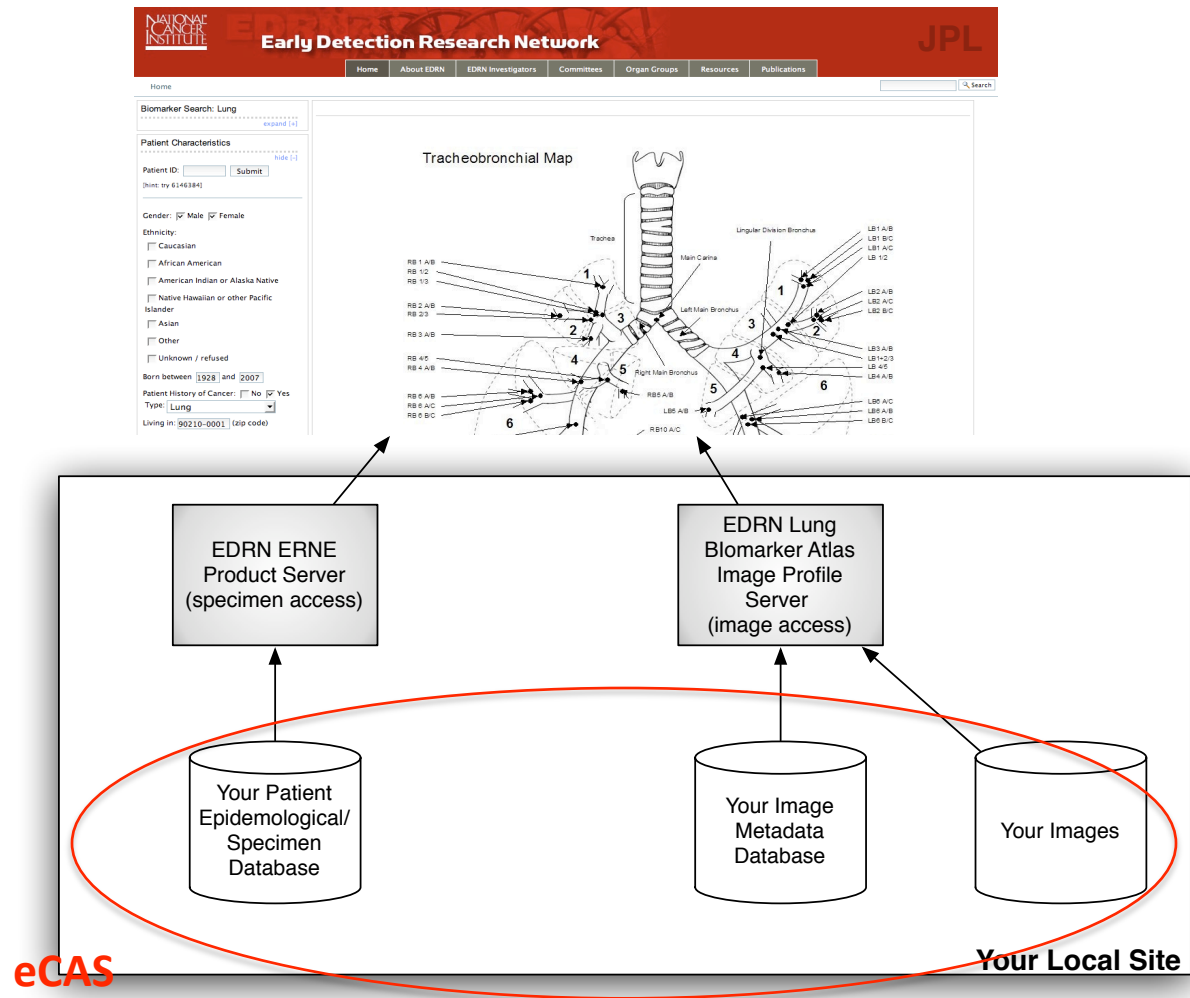
Tracheobronchial Map

Relationship to EDRN efforts and Standards

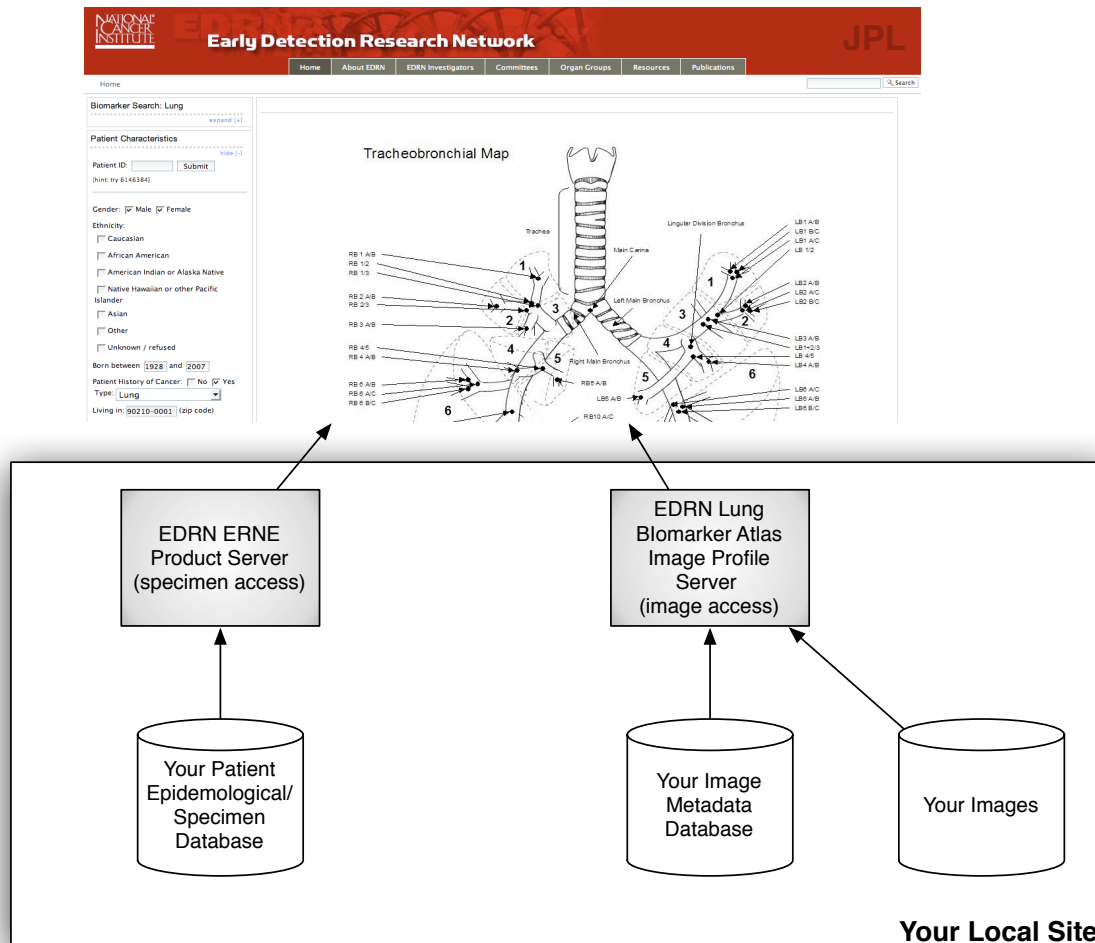
- Efforts
 - eCAS
 - Used in Lung Biomarker Atlas Application (UCHSC & Roswell Park)
 - CT Database
- Standards
 - Lung Biomarker Atlas CDEs
 - Ontology

Relationship to EDRN efforts and Standards

- Efforts
 - eCAS
 - Used in Lung & Roswell Park
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High Level Architecture



Screenshots (Querying)

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☐ Other

☐ Unknown / refused

Born between and

Patient History of Cancer: ☐ No ☒ Yes

Type:

Living in: (zip code)


☐ Smoker ☒ Non-Smoker

Status:: Processed 140 / 426 Profiles [Cancel](#)

Tracheobronchial Map

Search Results:

- 1 Result(s) Trachea
- 2 Result(s) RB 1 A/B
- 1 Result(s) RB 1/2
- 2 Result(s) RB 1/3
- 1 Result(s) RB 2 A/B
- 4 Result(s) RB 2/3
- 4 Result(s) RB 3 A/B
- 4 Result(s) RB 4/5
- 3 Result(s) RB 4 A/B
- 2 Result(s) RB 6 A/B
- 2 Result(s) RB 6 A/C
- 3 Result(s) RB 6 B/C
- 2 Result(s) Lingular Division Bronchus
- 1 Result(s) LB 1 A/B
- 1 Result(s) LB 1 B/C
- 1 Result(s) LB 1 A/C
- 7 Result(s) LB 1/2
- 1 Result(s) LB 2 A/B
- 5 Result(s) LB 2 A/C
- 4 Result(s) LB 2 B/C
- 2 Result(s) LB 3 A/B
- 1 Result(s) LB 1+2/3
- 4 Result(s) LB 4 A/B
- 1 Result(s) LB 6 A/C
- 1 Result(s) LB 6 A/B
- 1 Result(s) LB 6 B/C



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
Type:

Living in: (zip code)


☐ Smoker ☒ Non-Smoker

Link: [Return to Map View](#)


Search Results




[40529 RB7-3F.jpg](#)
Pathology Score: 940
Participant Id: 6227965




[8171 LUL-19.jpg](#)
Pathology Score: 832
Participant Id: 6186616




[21432 LB6-1.jpg](#)
Pathology Score: 891
Participant Id: 6155419




[15453 RB7-3F18.jpg](#)
Pathology Score: 833
Participant Id: 6341689




[9271 RUL-3F.jpg](#)
Pathology Score: 821
Participant Id: 6819142



[8171 RB8.9 - 38.jpg](#)
Pathology Score: 310
Participant Id: 6097731



[LB6-1F 40243.jpg](#)
Pathology Score: 410
Participant Id: 6096040



[40222 LUD8-1.JPG](#)
Pathology Score: 891
Participant Id: 6058037

Patient History

Screenshots

(Single Image Results)



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Living in: (zip code)

☐ Smoker ☒ Non-Smoker

Link: [Return to Map View](#)

Search Results



[40529 R87-3F.jpg](#)
Pathology Score: 940
Participant Id: 6227965




[8171 LUL-19.jpg](#)
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Participant Id: 6186616



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[40222 LUD8-1.JPG](#)
Pathology Score: 891
Participant Id: 6058037

Identifier: bf8d4b46-1fb2-11dc-aa9a-f30fdc0903a6

Title: 21432 LB6-1.jpg Specimen Collected Date: 06202007

Study Participant Id: 6155419 Bronchial Site Code: 8 Pathology Score: 891



Current Status

- UCHSC plugged in
 - Issues with data quality though
 - Apparently none of the EDRN protocol data has been annotated & input into Wilbur's database: only SPORE protocols have been input
 - Impossible to correlate image data with ERNE patient data
 - Atlas Software installed and firewall ports opened
- Roswell Park not plugged in
 - They would like JPL to host their (potentially) terabytes of data
 - Are in the process of working out their data model and building a database
 - 3-6 months out
- Biomarker Atlas Working Group Bi-Weekly Telecon
- Servers
 - Dev: <http://tumor.jpl.nasa.gov/biomarkeratlas/> (JPL internal)
 - Ops: <http://cancer.jpl.nasa.gov/biomarkeratlas/> (public)

Role of DMCC and NCI

- DMCC
 - Help to evolve Biomarker Atlas CDEs based on Roswell Park feedback
 - Andrew is in touch (monthly, bi-monthly) with M. Murphy to work on the data model, perhaps Deanna should be on the call
- NCI
 - Need program support to resolve the UCHSC ERNE data annotation issue
 - Identification of other PIs to share data
 - There are most likely others besides Wilbur and Mary: any EDRN PIs?
 - Expand the Atlas to other organs

Next Steps

- Resolve UCHSC data quality issues
 - Timeframe: next 2 months
- Work with Roswell Park to be ready when they are ready
 - Timeframe: next 6 months
- Get more data from other Lung Cancer Pls
- Expand the Atlas to other organs
 - Breast (Esserman), Colon (Grizzle)

Questions?